Appendix 8-D
Guidance on Widths of Buffers and Ratios for Compensatory Mitigation to be used with the Eastern Washington Wetland Rating System

This appendix provides guidance on buffers, ratios for compensatory mitigation, and other measures for protecting wetlands that are linked to the *Washington State Wetlands Rating System for Eastern Washington*. This guidance can be used to develop a program for protecting and managing the functions and values of wetlands through regulatory means. The recommendations are based on the analysis of the current scientific literature provided in Volume 1 of this two-volume report. The detailed rationale for the recommendations is provided in Appendices 8-E and 8-F.

The recommendations on buffer widths and mitigation ratios are general, and there may be some wetlands for which these recommendations are either too restrictive or not protective enough. The recommendations are based on the assumption that a wetland will be protected only at the scale of the site itself. They do not reflect changes in buffers and ratios that might result from regulations that are developed based on a larger scale, landscape approach.

Buffers

Requiring buffers of a specific width has been one of the primary methods by which local jurisdictions in Washington have tried to protect the functions and values of wetlands. Buffers are the uplands adjacent to an aquatic resource that can, through various physical, chemical, and/or biological processes, reduce impacts to the wetland from adjacent land uses. Buffers can also provide the terrestrial habitats necessary for many species of wildlife that use wetlands to meet some of their needs.

The primary purpose of buffers is to protect and maintain the wide variety of functions and values provided by wetlands. The physical characteristics of buffers—slope, soils, vegetation, and width—determine how well buffers reduce the adverse impacts of human development and provide the habitat needed by wildlife species that use wetlands. These characteristics are discussed in detail in Volume 1.

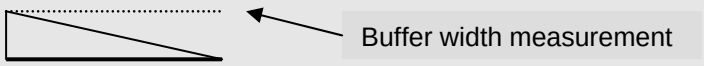
The review of the scientific literature has shown, however, that buffers alone cannot adequately protect all functions that a wetland performs. Guidance for protecting the functions and values of wetlands based on their category as determined through the rating system is provided below. The main focus, as in the past, is on buffers; however,

additional information is provided on other ways in which wetlands can be regulated to provide some of the necessary protection that buffers alone do not provide.

Basic Assumptions for Using the Guidance on Buffer Widths

Recommendations for widths of buffers assume that:

- The wetland has been categorized using the *Washington State Wetlands Rating System*.
- The buffer is vegetated with native plant communities that are appropriate for the ecoregion, or with a plant community that provides similar functions.
- If the vegetation in the buffer is disturbed (grazed, mowed, etc.) or non-native, proponents who are planning changes to land use that will increase impacts to wetlands will have to rehabilitate the buffer with native plant communities that are appropriate for the ecoregion, or with a plant community that provides similar functions.
- The width of the buffer is measured in horizontal distance (i.e., along the horizontal plane; see drawing below). This is because the effectiveness of buffers at removing pollutants before they enter a wetland decreases as the slope increases.



- The buffer will remain relatively undisturbed in the future within the width specified.

Three alternatives for protecting the functions of wetlands using buffers are described and defined in the following sections. These include:

- Buffer Alternative 1: Width based only on wetland category;
- Buffer Alternative 2: Width based on wetland category and modified by impacts of proposed land use; and
- Buffer Alternative 3: Width based on wetland category, intensity of impacts, and wetland functions or special characteristics.

The buffer widths recommended for each alternative were developed based on the review of scientific information in Volume 1. This discussion represents a synthesis of the information about the types and sizes of buffers needed to protect functions and the special characteristics in wetlands.

Buffer Alternative 1: Width based only on wetland category

The first alternative is the simplest, in which the width of buffers is based only on the category of the wetland (Table 1). This alternative provides the least flexibility because

many different types of wetlands and types of human impacts are combined. For example, not all wetlands that fall into Category I need a 250-foot buffer. If no distinctions are made between the types of wetlands that fall into Category I, all wetlands that fall into this category have to be protected with a 250-foot buffer so adequate protection is provided for those wetlands that do need a buffer this wide. Also, the buffer width indicated in this alternative is that which would be needed to protect the wetland from land uses that have the greatest impacts. The buffer recommended for each category of wetland in Alternative 1 is the widest recommended for that category in both Alternatives 2 and 3 (discussed below).

Table 1: Width of buffers needed to protect wetlands in eastern Washington if impacts from land use and wetland functions are NOT incorporated (Buffer Alternative 1).

Category of Wetland	Widths of Buffers
IV	50 ft
III	150 ft
II	200 ft
I	250 ft

Buffer Alternative 2: Width based on wetland category and modified by impacts of proposed land use

The second alternative increases the regulatory flexibility by including the concept that not all types of proposed land uses have the same level of impact (Table 2). For example, a new residence that is being built on 5 acres of land next to a wetland is expected to have a smaller impact than if 20 houses were being built on the same 5 acres. Three categories of impacts from proposed land uses are outlined: land uses that can create high impacts, moderate impacts, and low impacts to wetlands (types of land uses that can cause these levels of impacts are provided in Table 3).

Table 2. Width of buffers needed to protect wetlands in each category in eastern Washington with consideration of impacts of proposed land uses (Buffer Alternative 2).

Category of Wetland	Low Impact Land Use*	Moderate Impact Land Use*	High Impact Land Use*
IV	25 ft	40 ft	50 ft
III	75 ft	110 ft	150 ft
II	100 ft	150 ft	200 ft
I	125 ft	190 ft	250 ft
* See Table 3 for types of land uses that can result in low, moderate, and high impacts to wetlands.			

Table 3. Type of land uses that can result in high, moderate, and low levels of impacts to adjacent wetlands.

Level of Impact from Proposed Change in Land Use	Types of Land Uses that Cause Impacts Based on Common Zoning Designations
High	• Commercial • Urban • Industrial • Institutional • Retail sales • Residential (more than 1 unit/acre) • New agriculture (high-intensity processing such as dairies, nurseries, greenhouses, raising and harvesting crops requiring annual tilling, raising and maintaining animals) • High-intensity recreation (golf courses, ball fields) • Hobby farms
Moderate	• Residential (1unit/acre or less) • Moderate-intensity open space (parks) • New agriculture (moderate-intensity such as orchards and hay fields) • Paved trails • Building of logging roads
Low	• Forestry (cutting of trees only) • Low-intensity open space (such as passive recreation and natural resources preservation) • Unpaved trails

Buffer Alternative 3: Width based on wetland category, intensity of impacts, and wetland functions or special characteristics

The third alternative provides the most flexibility by recommending buffers that are based on three factors: the wetland category, the intensity of the impacts (as used in Alternative 2), and the functions or special characteristics of the wetland that need to be protected (determined through the rating system). The recommended buffers are shown in Tables 4 – 7. In this case a wetland may fall into more than one category. For example, a bog of 0.3 acre may be a Category II wetland because it is a bog, but it may be a Category I wetland based on its functions (as determined from the Wetland Rating Data Form) if it is part of a larger wetland complex.

NOTE: If a wetland meets more than one of the criteria listed in Tables 4 – 7, the buffer needed to protect the wetland is the widest one. For example, if a Category I wetland scores 32 points for habitat and 27 points for water quality functions, it requires a 200-foot buffer because the requirements for habitat are more stringent than those for the other functions.

Table 4. Width of buffers needed to protect Category IV wetlands in eastern Washington (Buffer Alternative 3).

Wetland Characteristics	Buffer Widths by Impact of Land Use	Other Measures Recommended for Protection
Score for functions less than 30 pts.	Low - 25 ft Moderate – 40 ft High – 50 ft	To be developed.

Table 5. Width of buffers needed to protect Category III wetlands in eastern Washington (Buffer Alternative 3).

Wetland Characteristics	Buffer Widths by Impact of Land Use	Other Measures Recommended for Protection
Moderate level of function for habitat (score for habitat 20 - 28 pts.)	Low - 75 ft Moderate – 110 ft High – 150 ft	To be developed.
Vernal pool	Low - 40 ft Moderate – 60 ft High – 80 ft	No intensive grazing or tilling in wetland or its buffer.
Not meeting above criteria	Low - 40 ft Moderate – 60 ft High – 80 ft	To be developed.

Table 6. Width of buffers needed to protect Category II wetlands in eastern Washington (Buffer Alternative 3).

Wetland Characteristics	Buffer Widths by Impact of Land Use (apply most protective)	Other Measures Recommended for Protection
High level of function for habitat (score for habitat 29 - 36 pts.)	Low - 100 ft Moderate – 150 ft High – 200 ft	Maintain connectivity to other natural areas.
Moderate level of function for habitat (score for habitat 20 - 28 pts.)	Low - 75 ft Moderate – 110 ft High – 150 ft	To be developed.
High level of function for water quality improvement and low for habitat (water quality 24 - 32 pts.; habitat less than 20 pts.)	Low - 50 ft Moderate – 75 ft High – 100 ft	No additional discharges of untreated runoff.
Vernal pool	Low - 100 ft Moderate – 150 ft High – 200 ft OR Develop a regional plan to protect the most important vernal pool complexes – buffers of vernal pools outside protection zones can then be reduced to: Low - 40 ft Moderate – 60 ft High – 80 ft	No grazing in wetland.
Forested	Buffer width to be based on score for habitat functions or water quality functions	Riparian forest wetlands need to be protected at a watershed or subbasin scale (protection of the water regime in the watershed). Other protection based on needs to protect habitat and/or water quality functions.
Not meeting above criteria	Low - 50 ft Moderate – 75 ft High – 100 ft	To be developed.

Table 7. Width of buffers needed to protect Category I wetlands in eastern Washington (Buffer Alternative 3).

Wetland Characteristics	Buffer Widths by Impact of Land Use (apply most protective)	Other Measures Recommended for Protection
Natural Heritage Wetlands	Low - 125 ft Moderate – 190 ft High – 250 ft	No additional discharges of surface water. No septic systems within 300 ft. Restore degraded parts of buffer.
Bogs	Low - 125 ft Moderate – 190 ft High – 250 ft	No additional surface discharges. Restore degraded parts of buffer.
Forested	Buffer size to be based on score for habitat functions or water quality functions	If forested wetland scores high for habitat, need to maintain connectivity to other natural areas. Restore degraded parts of buffer.
Alkali	Low – 100 ft Moderate – 150 ft High – 200 ft	No additional surface discharges. Restore degraded parts of buffer.
High level of function for habitat (score for habitat 29 - 36 pts.)	Low – 100 ft Moderate – 150 ft High – 200 ft	Maintain connectivity to other natural areas. Restore degraded parts of buffer.
Moderate level of function for habitat (score for habitat 20 - 28 pts.)	Low – 75 ft Moderate – 110 ft High – 150 ft	To be developed.
High level of function for water quality improvement (24 – 32 pts.) and low for habitat (less than 20 pts.)	Low – 50 ft Moderate – 75 ft High – 100 ft	No additional discharges of untreated runoff.
Not meeting any of the above criteria	Low – 50 ft Moderate – 75 ft High – 100 ft	To be developed.

Special Conditions for a Possible Reduction in Buffer Widths

Condition 1: Reduction in buffer width based on reducing the intensity of impacts from proposed land uses

The buffer widths recommended for land uses with high-intensity impacts to wetlands can be reduced to those widths recommended for moderate-intensity impacts under the following conditions:

- For wetlands that score moderate or high for habitat (20 points or more), the width of the buffer around the wetland can be reduced if both of the following criteria are met:
  - A relatively undisturbed vegetated corridor at least 100 feet wide is protected between the wetland and any other Priority Habitats as defined by the Washington State Department of Fish and Wildlife (for current definitions see http://wdfw.wa.gov/hab/phshabs.htm). The corridor must be protected for the entire distance between the wetland and the Priority Habitat via some type of legal protection such as a conservation easement; and
  - Measures to minimize the impacts of different land uses on wetlands, such as the examples summarized in Table 8, are applied.
- For wetlands that score less than 20 points for habitat, the buffer width can be reduced to that required for moderate land use impacts if measures to minimize the impacts of different land uses on wetlands, as summarized in Table 8, are applied.

Table 8. Examples of measures to minimize impacts to wetlands from different types of activities. Note: This is not a complete list of options.

Examples of Disturbance	Examples of Measures to Minimize Impacts	Activities that Cause the Disturbance
Lights	Direct lights away from wetland.	Parking lots, warehouses, manufacturing, residential
Noise	Locate activity that generates noise away from wetland.	Manufacturing, residential
Toxic runoff*	Route all new runoff away from wetland. Establish covenants limiting use of pesticides within 150 ft of wetland. Apply integrated pest management.	Parking lots, roads, manufacturing, residential areas, application of agricultural pesticides, landscaping
Change in water regime	Infiltrate or treat, detain, and disperse new runoff into buffer.	Impermeable surfaces, lawns, tilling
Pets	Plant dense vegetation around buffer, such as rose, hawthorn, etc.	Residential areas
Human disturbance	Plant buffer with impenetrable natural vegetation appropriate for region.	Residential areas
Dust	Utilize best management practices to control dust.	Tilled fields
* These examples are not necessarily adequate to meet the rules for minimizing toxic runoff if threatened or endangered species are present at the site.		

Condition 2: Reductions in buffer widths where existing roads or structures lie within the buffer

Where a legally established, non-conforming use of the buffer exists (such as a road or structure that extends into the recommended wetland buffer), proposed actions in the buffer may be permitted as long as they do not increase the degree of non-conformity. In term of wetlands, this means no increase in the impacts to the wetland from activities in the buffer. For example, the widening of an existing road along its upland edge without any further roadside development would not likely change the nature or intensity of the impacts. If the road is only 50 feet from the edge of a Category II wetland, additional buffer is not needed to provide protection for the wetland. If, however, the proposal is to build a shopping center along the upland side of the road, the impacts will increase. This would require the developer to provide a standard buffer extending beyond the road.

Conditions for Increasing the Width of the Buffer or Enhancing It

Condition 1: Buffer is not vegetated with plants appropriate for the region

As stated above, the recommended widths for buffers are based on the assumption that the buffer is vegetated with a native plant community appropriate for the ecoregion or with one that performs similar functions. If the existing buffer is unvegetated, sparsely vegetated, or vegetated with non-native species that do not perform needed functions, the buffer should either be planted to create the appropriate plant community or the buffer should be widened to ensure that adequate functions in the buffer are provided. Generally, improving the vegetation will be more effective than widening the buffer.

Condition 2: Buffer has a steep slope

The review of the literature indicates that the effectiveness of buffers at removing pollutants before they enter a wetland decreases as the slope increases. If the buffer for a wetland is to be based on the score for its ability to improve water quality (see Tables 4 - 7) rather than habitat or other criteria, then the buffer should be increased by 50% if the slope is greater than 30% (a 3-foot rise for every 10 feet of horizontal distance).

Condition 3: Buffer is used by sensitive species

If the wetland provides habitat for a particularly sensitive species (such as a threatened or endangered species), the buffer width should be increased to provide adequate protection for the species based on its particular life history needs. Some buffer requirements of priority species are available on the Washington State Department of Fish and Wildlife web page (http://wdfw.wa.gov/hab/phsrecs.htm).

Buffer Averaging

The widths of buffers may be averaged if this will improve the protection of wetland functions, or if it is the only way to allow for reasonable use of a parcel. There is no scientific information available to determine if averaging of the widths of buffers does actually protect the functions. **Averaging may not be used in conjunction with the provisions for reductions in buffers listed above.**

- Averaging to **improve wetland protection** may be permitted when all of the following conditions are met:
  - The wetland has significant differences in characteristics that affect its habitat functions, such as a wetland with a forested component adjacent to a degraded

emergent component or a "dual-rated" wetland with a Category I area adjacent to a lower rated area; and

- The buffer is increased adjacent to the higher-functioning area of habitat or more sensitive portion of the wetland and decreased adjacent to the lower-functioning or less sensitive portion; and
- The total area of the buffer after averaging is equal to the area required without averaging; and
- The buffer at its narrowest point is never less than 3/4 of the standard width.

- Averaging to **allow reasonable use** of a parcel may be permitted when all of the following are met:
  - There are no feasible alternatives to the site design that could be accomplished without buffer averaging; and
  - The averaged buffer will not result in degradation of the wetland's functions and values as demonstrated by a report from a qualified wetland expert (see Appendix 8-G for a definition of a qualified wetland expert); and
  - The total buffer area after averaging is equal to the area required without averaging; and
  - The buffer at its narrowest point is never less than 3/4 of the standard width.

Ratios for Compensatory Mitigation

When the acreage required for compensatory mitigation is divided by the acreage of impact, the result is a ratio known variously as a "replacement," "compensation," or "mitigation" ratio. Using science, policy, and experience, regulatory agencies may develop a set of ratios that inform proponents of projects as to the approximate area of compensatory mitigation that is likely to be required.

Basic Assumptions for Using the Guidance on Ratios

- All ratios are based on the assumption that the proposed compensatory mitigation does not create, restore, or enhance an "atypical" wetland. This means that the project proposed does not alter the hydrogeomorphic (HGM) setting of the site, and the type of wetland proposed is appropriate for its position in the landscape. For example, excavating depressions to enhance a slope wetland is atypical because depressional wetlands do not naturally occur on slopes.
- The ratios are for a concurrent compensatory mitigation project. If the impacts to a wetland are to be mitigated by using an established mitigation bank, the rules and ratios applicable to the bank should be used.
- The ratios are based on the assumption that the HGM class of the wetland proposed as compensation is the same as the class of the impacted wetland (for example, impact to a riverine wetland is compensated by creating, restoring, or enhancing a riverine wetland).
- Ratios for projects in which the HGM class of wetlands proposed as compensation is not the same as that of the impacted wetland should be determined on a case-by-case basis using the recommended ratios as a starting point.
- The recommended ratios for compensatory mitigation are based on replacing a Category I or II wetland with a Category II wetland, and replacing a Category III or IV wetland with a Category III wetland.
- The ratio for using enhancement alone, without any replacement of wetland area, is 4 times that for restoration or creation.
- If the area of impacted wetland is replaced at a 1:1 ratio through restoration or creation, the remainder of the area needed to meet the ratio for restoration or creation can be replaced by enhancement at a 2:1 ratio. For example, impacts to 1 acre of a Category II wetland requiring a 3:1 ratio for creation can be compensated by creating 1 acre and enhancing 4 acres (instead of the additional 2 acres of creation that would be required).

These ratios were developed to provide a starting point for further discussions with each proponent of compensatory mitigation. They are based on averaging the observations of mitigation success and risk at a programmatic level, and do not represent the specific risk of any individual project.

As noted in the shaded box above, the ratios for compensatory mitigation are based on replacing a Category I or II wetland with a Category II wetland, and replacing a Category III or IV wetland with a Category III wetland. The ratios may be adjusted either up or down if the category of the wetland proposed for compensation is different (for example, ratios may be lower if impacts to a Category IV wetland are to be mitigated by creating a Category II wetland).

On a case-by-case basis, it is possible to make use of the scores from the Wetland Rating Data Form of the wetland rating system to compare functions between the mitigation site and the impact site. This information may also be used to adjust replacement ratios. The scores from the Methods for Assessing Wetland Functions developed for specific wetland types in Washington State may be considered another option to establish whether the functions lost will be replaced if both the impacted site and the site used for compensation are of the same HGM class and subclass.

Definitions of Types of Compensatory Mitigation

The ratios presented here are also based on the type of compensatory mitigation proposed (enhancement, restoration, or creation). In its Regulatory Guidance Letter 02-02, the Corps of Engineers provided definitions for these types of compensatory mitigation. For the purpose of consistency, Ecology will use the same definitions for wetland projects as used in the Corps' guidance letter. These definitions are provided below.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former or degraded wetland. For the purpose of tracking net gains in wetland acres, restoration is divided into:

- **Re-establishment:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a **former** wetland. Activities could include removing fill material, plugging ditches, or breaking drain tiles. Re-establishment results in a gain in wetland acres.

- **Rehabilitation:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural or historic functions of a **degraded** wetland. Activities could involve breaching a dike to reconnect wetlands to a floodplain or return tidal influence to a wetland. Rehabilitation results in a gain in wetland function but does not result in a gain in wetland acres.

Establishment (Creation): The manipulation of the physical, chemical, or biological characteristics present to develop a wetland on an upland or deepwater site, where a wetland did not previously exist. Activities typically involve excavation of upland soils to elevations that will produce a wetland hydroperiod, create hydric soils, and support the growth of hydrophytic plant species. Establishment results in a gain in wetland acres.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of a wetland site to heighten, intensify or improve specific function(s) or to change the

growth stage or composition of the vegetation present. Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention or wildlife habitat. Activities typically consist of planting vegetation, controlling non-native or invasive species, modifying site elevations or the proportion of open water to influence hydroperiods, or some combination of these. Enhancement results in a change in some wetland functions and can lead to a decline in other wetland functions, but does not result in a gain in wetland acres.

Protection/Maintenance (Preservation): Removing a threat to, or preventing the decline of, wetland conditions by an action in or near a wetland. This includes the purchase of land or easements, repairing water control structures or fences, or structural protection such as repairing a barrier island. This term also includes activities commonly associated with the term "preservation." Preservation does not result in a gain of wetland acres, may result in a gain in functions, and will be used only in exceptional circumstances.

Distinction between Rehabilitation and Enhancement

The distinction between rehabilitation and enhancement is sometimes difficult to understand. For the purposes of the rating system, Ecology further defines **rehabilitation** as:

- Actions that restore the original HGM class, or subclass, to a wetland whose current HGM class, or subclass, has been changed as a result of human activities.
- Actions that restore the water regime that was present and maintained the wetland before human activities changed it.

Any other actions taken in existing wetlands would be considered as **enhancement**. For example, a wetland that was once a forested riverine wetland was changed to a depressional, emergent wetland by the construction of a dike and through grazing. Rehabilitating the wetland would involve breaching the dike so the wetland becomes a riverine wetland again, removing the grazing, and reforesting the area. Removing the grazing and reforesting the wetland without reestablishing the links to the riverine system would be considered as enhancement.

Mitigation ratios for projects in eastern Washington that do not alter the HGM setting of the site used for mitigation are shown in Table 9 on the next page.

Table 9: Mitigation ratios for projects in eastern Washington that do not alter the hydrogeomorphic setting of the site used for mitigation.

These ratios were developed to provide a starting point for further discussions with each proponent of compensatory mitigation. They are based on averaging the observations of mitigation success and risk at a programmatic level, and do not represent the specific risk of any individual project.

Category and Type of Wetland	Re-establishment or Creation	Rehabilitation**	1:1 Re-establishment or Creation (R/C) and Enhancement (E)	Enhancement Only
All Category IV	1:5:1	3:1	1:1 R/C and 2:1 E	6:1
All Category III	2:1	4:1	1:1 R/C and 2:1 E	8:1
Category II Forested	4:1	8:1	1:1 R/C and 6:1 E	16: 1
Category II Vernal pool	2:1 Replacement has to be seasonally ponded wetland	4:1 Replacement has to be seasonally ponded wetland	Case-by-case	8:1
All other Category II	3:1	8:1	1:1 R/C and 4:1 E	12:1
Category I Forested	6:1	12:1	1:1 R/C and 10:1	24:1
Category I based on score for functions	4:1	8:1	1:1 R/C and 6:1 E	16:1
Category I Natural Heritage site	Not considered possible*	6:1 rehabilitation of a Natural Heritage site	Case-by-case	Case-by-case
Category I Alkali	Not considered possible*	6:1 rehabilitation of an alkali wetland	Case-by-case	Case-by-case
Category I Bog	Not considered possible*	6:1 rehabilitation of a bog	Case-by-case	Case-by-case

*Natural Heritage sites, alkali wetlands, and bogs are considered irreplaceable wetlands, and therefore no amount of compensation would replace these ecosystems. Avoidance is the best option. In the rare cases when impacts cannot be avoided, replacement ratios will be assigned on a case-by-case basis. However, these ratios will be significantly higher than the other ratios for Category I wetlands. Criteria for determining appropriate ratios in these circumstances will be forthcoming.

**Rehabilitation ratios are based on the assumption that actions judged to be most effective for the site are being implemented.

NOTE: Preservation is discussed in the following section.

Conditions for Increasing or Reducing Replacement Ratios

Increases in replacement ratios are appropriate under the following circumstances:

- Uncertainty exists as to the probable success of the proposed restoration or creation; or
- A significant period of time will elapse between impact and establishment of wetland functions at the mitigation site; or
- Proposed mitigation will result in a lower category wetland or reduced functions relative to the wetland being impacted; or
- The impact was an unauthorized impact.

Reductions in replacement ratios are appropriate under the following circumstances:

- Documentation by a qualified wetland specialist (see Appendix 8-G) demonstrates that the proposed mitigation actions have a very high likelihood of success based on prior experience;
- Documentation by a qualified wetland specialist demonstrates that the proposed actions for compensation will provide functions and values that are significantly greater than the wetland being impacted; or
- The proposed actions for compensation are conducted in advance of the impact and are shown to be successful; or
- In wetlands where several HGM classes are found within one delineated boundary, the ratios can be decreased if:
  - Impacts to the wetland are all within an area that has a different HGM class from the one used to establish the category; and
  - The category of this area with a different class is "lower" than that of the entire wetland; and
  - The proponents provide adequate hydrologic and geomorphic data to establish that the boundary between the HGM classes lies outside of the footprint of the impacts.

Using Wetland Preservation for Compensatory Mitigation

Impacts to wetlands may be mitigated by preservation of wetland areas when used in combination with other forms of mitigation such as creation, restoration, or enhancement at the preservation site or at a separate location.

Preservation may also be used by itself, but more restrictions apply as outlined below.

1. **Preservation in combination with other forms of compensation.** Using preservation as compensation is acceptable when done in combination with restoration, creation, or enhancement, provided that a minimum of 1:1 acreage replacement is provided by restoration or creation and the criteria below are met:

    a) The impact area is small, and/or impacts are to a Category III or IV wetland;

    b) Preservation of a high quality system occurs in the same Water Resource Inventory Area (WRIA) or watershed basin as the wetland impact;

    c) Preservation sites include buffer areas adequate to protect the habitat and its functions from encroachment and degradation; and

    d) Mitigation ratios for preservation in combination with other forms of mitigation shall range from 10:1 to 20:1, as determined on a case-by-case basis, depending on the quality of the wetlands being mitigated and the quality of the wetlands being preserved.

2. **Preservation as the sole means of compensation for wetland impacts.** Preservation of at-risk, high-quality habitat may be considered as the sole means of compensation for wetland impacts when all of the following criteria are met:

    a) Preservation is used as a form of compensation only after the standard sequencing of mitigation (avoid, minimize, and then compensate) has been applied;

    b) Creation, restoration, and enhancement opportunities have also been considered, and preservation is the best mitigation option;

    c) The impact area is small and/or impacts are to a Category III or IV wetland;

    d) Preservation of a high quality system occurs in the same Water Resource Inventory Area (WRIA) or a watershed where the wetland impact occurs;

    e) Preservation sites include buffer areas adequate to protect the habitat and its functions from encroachment and degradation;

    f) The preservation site is determined to be under imminent threat, specifically, sites with the potential to experience a high rate of undesirable ecological change due to on-site or off-site activities. ("Potential" includes permitted, planned, or likely actions that are not adequately protected under existing regulations [for example, logging of forested wetlands]); and

g) The area proposed for preservation is of high quality and critical for the health of the watershed or basin. Some of the following features may be indicative of high quality sites:

i. Category I or II wetland rating;

ii. Rare wetland type (for example, bogs, mature forested wetlands, estuaries);

iii. Habitat for threatened or endangered species;

iv. Wetland type that is rare in the area;

v. Provides biological and/or hydrological connectivity;

vi. High regional or watershed importance (for example, listed as priority site in watershed plan); and

vii. Large size with high species diversity (plants and/or animals) and/or high abundance.

h) Mitigation ratios for preservation as the sole means of mitigation shall generally start at 20:1. Specific ratios should depend upon the significance of the preservation project and the quality of the wetland resources lost.

Replacement Ratios for Temporal Impacts and Conversions

When temporal impacts to wetlands occur and the wetlands are not permanently lost (for instance, clearing of wetland vegetation during pipeline construction), some mitigation for the temporal loss of wetland functions should be required. Although the wetlands will be revegetated and over time are anticipated to have their previous level of functioning restored, a long-term loss of functions will occur. In addition, there is some risk of failure associated with the impact or alteration, especially when deep excavation is required to accommodate drilling equipment.

Generally, the ratios for **temporal impacts** should be half of the recommended ratios for permanent impacts, provided that the following measures are applied:

- An explanation is provided of how hydric soil, especially deep organic soil, is handled in the areas where the soil profile will be severely disturbed for a fairly significant depth and/or time;
- Groundwater flow patterns and how draining the wetlands will be avoided must be identified and described;
- A 10-year monitoring and maintenance plan must be provided for restored forest and shrub wetlands;

- Disturbed buffers are to be revegetated and monitored; and
- The hydroseed mix to be applied on disturbed restored areas must be identified. However, if the impacts are to non-native emergent wetlands (e.g., reed canarygrass wetlands), restoration of the site after construction is generally all that is required.

Replacement of lost functions due to the **conversion of wetlands** from one type to another should also be required. When wetlands are not completely lost, but are converted to another type, such as a forested wetland converted to an emergent or shrub wetland, some functions are lost or reduced. Replacement ratios should vary based on the degree of the alteration but should generally be less than those required for permanent losses of wetland.